EXECUTIVE SECRETARIAT

Routing Slip

TO:		ACTION	INFO	DATE	INITIAL
1	DCI				
2	DDCI				
3	EXDIR				
4	D/ICS				
5	DDI		✓		
6	DDA		✓		
7	DDO				
8	DDS&T		✓		
9	Chm/NIC				
10	GC				
11	IG				
12	Compt				
13	D/EEO				
14	D/Pers				
15	D/OEA				
16	C/PAD/OEA	✓			
17	SA/IA				
18	AO/DCI				
19	C/IPD/OIS				
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22					
	SUSPENSE		Date		

Remarks:

Executive Secretary

6/3/82

Date

3637 (10-81)

James Madison University
Department of Geology and Geography
Harrisonburg, Virginia 22807
(703) 433-6130

May 27, 1982

Director of Central Intelligence
Central Intelligence Agency
Washington, DC 20505

Dear Sir:

[redacted] of your Public Affairs Office has suggested that I contact you. STAT

Briefly, one of the officers in our ROTC unit (Capt. Dominic Manocchio) and I have received approval to teach a mini-course in Military Photo Interpretation this coming school year. It will be a one-credit college course aimed primarily at ROTC cadets who may be considering careers in Military Intelligence.

Much of the aerial photo interpretation work will be done using the three Baush and Lomb Zoom Stereoscopes which we have been able to obtain as Federal Surplus (see photos enclosed). However, we do not currently have appropriate aerial film of sufficient image quality to utilize this equipment in the course.

I have discussed this at length with Mr. Dino Brugioni, a photo specialist recently retired from the Agency. We both agreed that a small quantity of duplicate positive film from the Cuban Missile Crisis of 1962 would be ideal. Although he informs me that the film was declassified, my efforts to access it have been unsuccessful. Apparently the film is still listed as being classified.

Would it be possible for you to have someone review this situation? I feel there are several very good reasons for declassifying at least part of it at this time:

1. It would serve a useful purpose by contributing to the quality training of U.S. Army officers in ROTC.

2. This coming October, most of it will be twenty years old!

3. Intelligence collection methods would not be compromised since two of the reconnaissance aircraft involved (i.e., the RF-101 and the RF-8U) are now retired from the service and the third (i.e., the Lockheed U-2) is now 27 years old.

L-305

In conclusion, we are seeking a small quantity of high-quality, duplicate positive, full-frame aerial photography for use in officer training. I have included a few xerox copies of the news photos taken from this film to show you specifically the kind of thing we think may be appropriate.

I have met already with [redacted] (DIA-RTS) who is prepared to respond to an Army request to duplicate some of the film, if the classification problem can be resolved. STAT

Sincerely,

Glen C. Gustafson

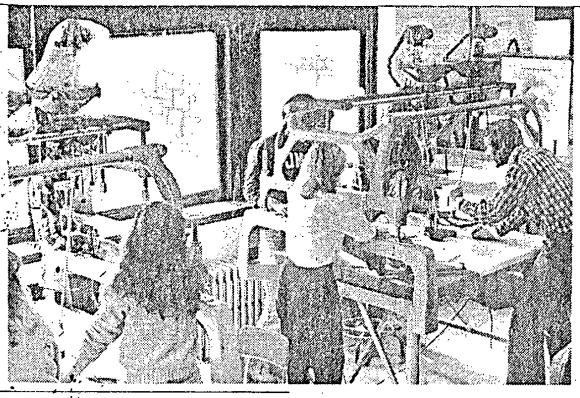
Glen C. Gustafson, Ph.D.
Associate Professor

GCG:blh

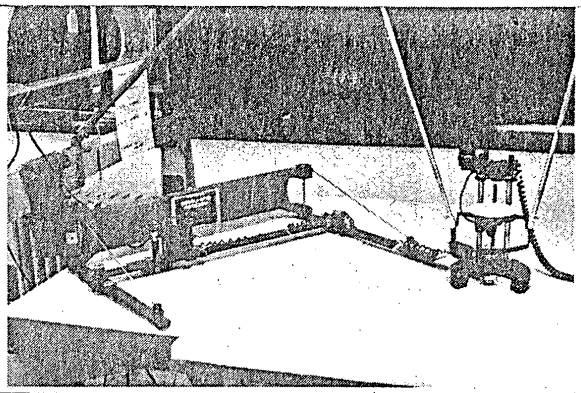
Enclosures

james madison university

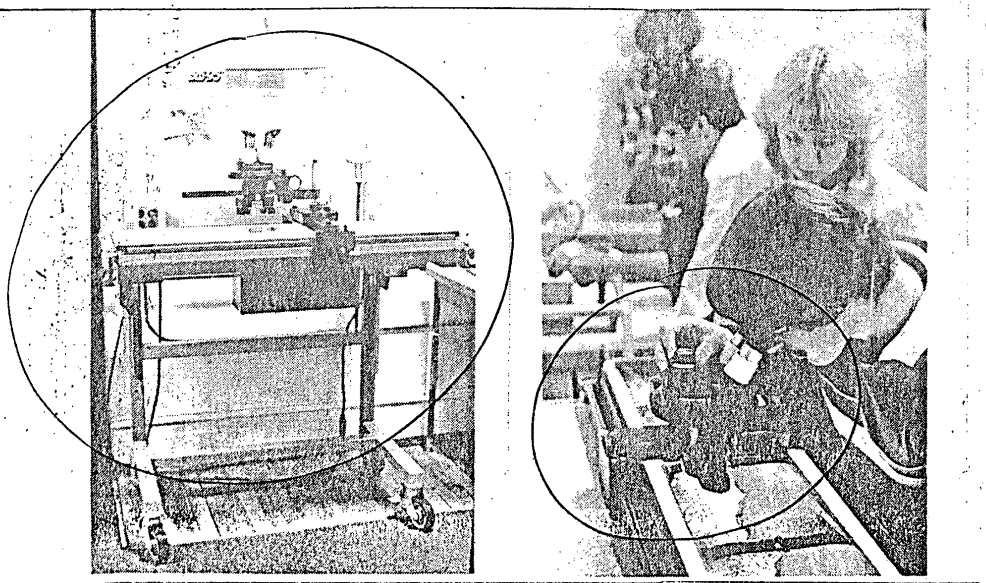
GRAPHICS LAB
Department of Geology and Geography



Kelsh Plotters

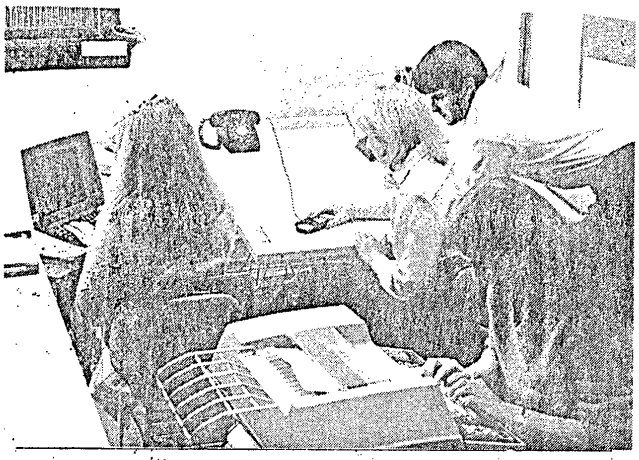


Precision Pantograph

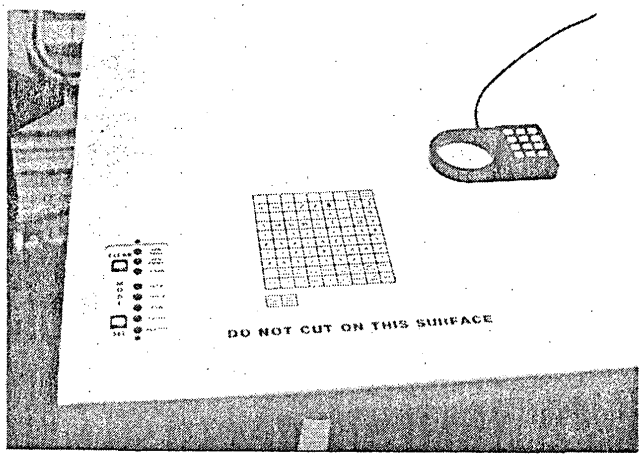


Richards aerial film light table and micro-stereoscope

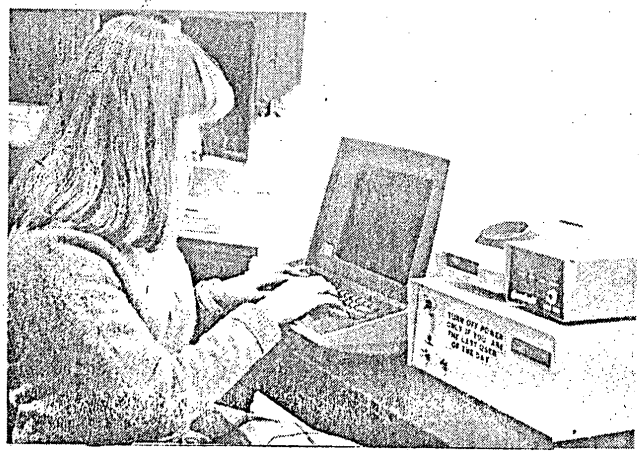
Planning map reproduction



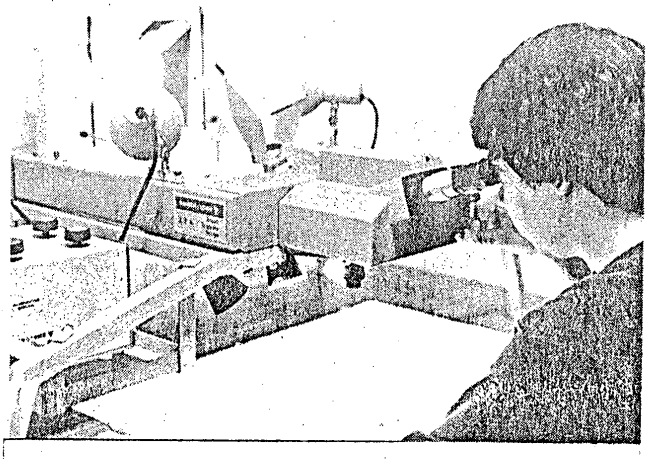
Computer Graphics System



Talos digitizer and menu



Tektronix graphics terminal



Baush and Lomb Zoom Transfer Scope

James Madison News

Volume 5, Number 26, April 1, 1982 (ISSN 0273-6292)

In Creating Maps

Geography Students Use New Equipment

By Judy Daniel
Staff Writer

In Room 308, Wilson Hall, students are wearing glasses with one red and one green lens, and they are not watching "3-D" movies. They are using a sophisticated piece of mapmaking equipment called a stereo plotter.

With the plotter they can create topographic maps from aerial photos, said Dr. Glen Gustafson, associate professor of geography.

The two Kelsh Plotters now in use in the geology and geography department's graphics laboratory have a checkered past—they were formerly housed at Lorton Reformatory.

When the mapmaking training program there was discontinued and the plotters were offered for sale, Gustafson was determined to get them for JMU.

The paper work was handled through the regional General Services Administration office in Richmond, and a JMU truck was sent to pick up the plotters.

"We were told they were in perfect condition and already crated," he said, but when the truck arrived at Lorton the driver found them disassembled with many missing parts.

In short, when they arrived on campus, "they looked like a bunch of junk," Gustafson said.

Undaunted, he continued the process of getting the cumbersome equipment in place.

Buildings and grounds staff members arranged for cranes to lift the instruments through the windows of the third-floor laboratory. Because of the plotters' size and weight, bringing them in by ordinary means would have been impossible. He pointed out that the slate tabletop portion of each plotter weighs 750 pounds.

Once the plotters were inside, Gustafson, associate professor of geography Dr. Joseph Enedy, and a group of students held a "painting party" to spruce them up.

The plotters were adjusted by a retired employee of the U.S. Geological Survey and by Donnie Nau, a senior geography major who spent a day at USGS studying the plotters there.

Photos by Karen Gillions

Steve Foote, a senior geography major, interprets aerial film by using a stereo microscope during a session in the graphics laboratory.

The consulting services of the USGS employee, and local ingenuity, elbow grease and painting talents transformed the plotters into "valuable" instruments at a fraction of their normal cost, Gustafson said.

In order to draw a map with the plotter, the 3-D glasses are used to create the illusion of depth on an aerial photo. Natural land features can then be traced at their various elevations to produce an extremely accurate topographic map. "Every other type of map is based on information which originated from this type of instrument," Gustafson said.

Use of the plotters will continue to expand "based on our accumulated experience and the availability of local aerial photographs," he said. There is no "late date, large scale, suitable aerial photography of our area," he noted, adding that he is encouraging the City of Harrisonburg to "fly" some.

The Kelsh Plotters, the computer mapmaking equipment and a newly purchased Bausch and Lomb stereo microscope are among instruments in the graphics lab "not normally available in an undergraduate geography program," Gustafson said.

The stereoscope is similar to those used by organizations such as intelligence agencies, the USGS, National Aeronautics and Space Administration and the U.S. Forest Service. It is used to view film on a light table. It can be employed with a wide range of aerial photographs or even with ground slides, and provides "a three dimensional impression," the associate professor said. Depth perception through the microscope is "better than what the eye could see if you were there."

The advantages of using film instead of paper prints for interpretation of aerial photographs are "just huge," he added. For example, on a light table the film image can be magnified greatly without losing clarity.

All of the equipment in the graphics lab was purchased with an eye toward practical experience for students and teaching and research for faculty. Students who have experience with such equipment will have an edge when applying for jobs or to graduate school, Gustafson said.

Dr. Glen Gustafson, associate professor of geography, instructs Mark Wilson in how to use a stereo plotter to make topographic maps. Wilson is a senior majoring in anthropology and geography.

The Computerization of Cartography

By Judy Daniel

If 16th-century geographer Gerhardus Mercator could imagine a cartographer's heaven, it just might be Room 308 in JMU's Wilson Hall.

That is the location of the geology/geography graphics lab, which houses an array of computer mapmaking equipment.

The equipment is "a real breakthrough for the program here," said associate professor Dr. Glen Gustafson. "It goes far beyond the line-printer maps we have been making for some time."

Until the acquisition of the lab's new equipment, campus computer terminals were capable only of displaying numbers and letters. Now line maps are being previewed on special graphics terminals and later plotted on paper by a pen plotter.

Gustafson, who conducts several labs a week for geography students, explained that the equipment can reduce the amount of time needed to complete certain elements of the mapmaking process. "But we make sure the students can accomplish the same thing manually," he added, noting that the equipment should not take the place of basic skills and understanding.

The equipment consists of a three-by-five foot digitizing table, a microcomputer, a graphics terminal and a telephone connection to the main academic computer in Harrison Hall Annex.

The main operation, "digitizing," consists of automatically reading coordinates for points from a map or graph on the digitizing table.

The digitizing table spent its first few months on campus in the Academic Computer Center where JMU staff members Don Seay, Dave Trout and center director Stin Lenkherd connected it to the main computer and wrote several programs.

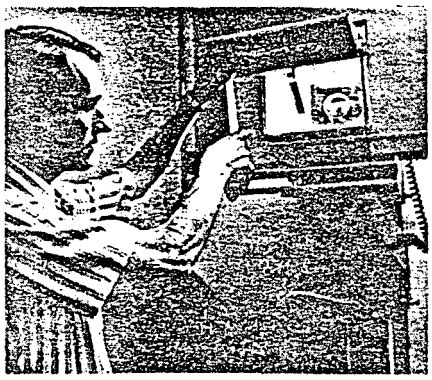
The programs are very basic, Gustafson said, but more complex ones can be added later.

Users of the equipment call up the program they have selected and follow instructions given either on the viewing screen or on a prepared documentation printout, the associate professor said.

By using the programs, students can get "valuable experience in how to edit and modify" existing maps or create new ones, Gustafson said.

One program, "Symap" from Harvard University, has been in use at JMU for three years, but the new equipment "enhances the use of the program dramatically," Gustafson said.

In the past, coordinates for a map were measured, or "digitized," by hand, Gustafson said. Now they are automatically recorded by tracing the map outline with the digitizer.



Dr. Gustafson demonstrates the use of one of the optical projection instruments used for mapping.

Hand digitizing a map took many hours, Gustafson said. "Now a student can digitize a file of several hundred points in 30 minutes."

The new equipment should be especially helpful to the advanced cartography students who are producing maps of certain areas of the Shenandoah Valley.

Last year the class made a map of Rockingham County which class members are presently updating and to which more features are being added.

The newest Rockingham County map shows shaded terrain relief, Gustafson said. "It's an experiment and will make a very attractive map," he said. "No other county map in Virginia has this feature."

A current class is finishing up one of Augusta County as well as a tourist map of the Valley.

The tourist map takes a basic map and uses overlays of different colors to highlight nature, resort, historical and park areas. "We want to show as many as possible of the major tourist sites," Gustafson said.

All three of the maps will be distributed through banks and realtors, and community service organizations.

The Rockingham County map is currently sponsored by Valley National Bank of Harrisonburg.

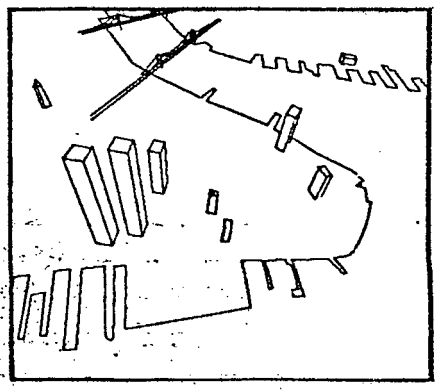
The Augusta County and Shenandoah Valley tourist maps do not yet have sponsors, Gustafson said. He is seeking banks or businesses to be sponsors so that the maps can be printed and distributed as soon as possible.

This year's advanced cartography students worked with the Harrisonburg city planning department. A new city zoning and land use planning map was produced and will be published in a multicolor edition by the City of Harrisonburg.

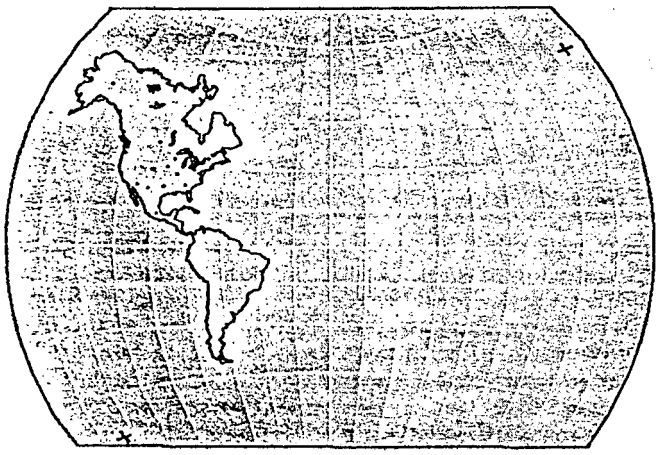
Although the new equipment is located in Wilson Hall, Gustafson stressed that it is available not only to geography students and faculty but to those in other disciplines as well. Members of the JMU Archeological Research Center and the departments of geology, physics and mathematics and computer science have already made arrangements to use it.

"Every effort is being made to make the equipment available to qualified users on the campus," Gustafson said. "We are eager to move the use of computer graphics forward."

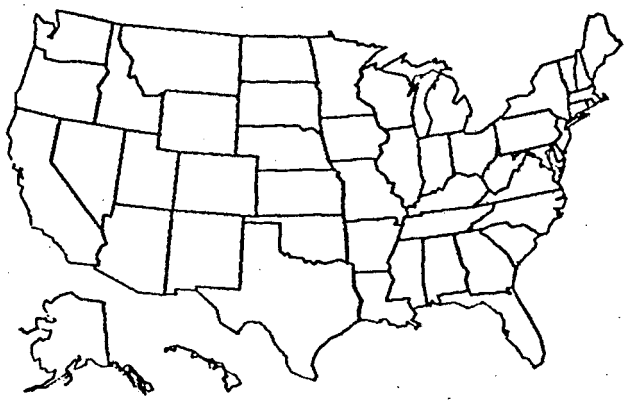
Drawings on these pages are samples of the new map products being produced in the graphics lab.



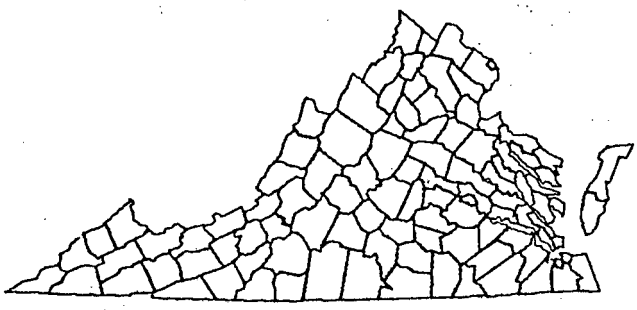
Aerial view of lower Manhattan.



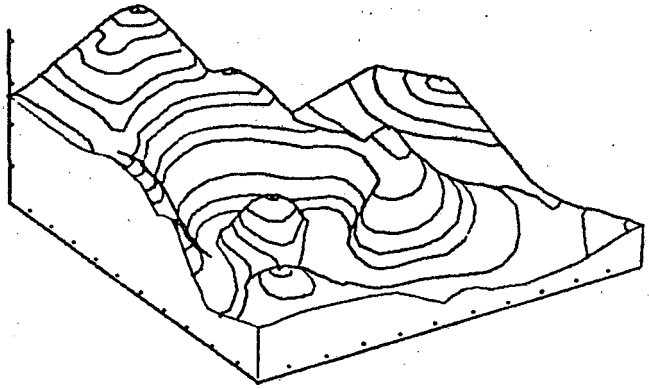
The western hemisphere.



The United States.



Virginia with county subdivisions.



Block diagram of terrain showing contours and streams.

Roy Downey (left) and Mark Owens (right) are briefed on use of the lab's new computer graphic system.

Daily News-Record
IN THE HEART OF HARRISONBURG
SHENANDOAH VALLEY OF VIRGINIA

(USPS 144-520) Harrisonburg, Virginia, Friday, May 7, 1982 433-2702

Two JMU Maps Win Mentions

Two maps of the Harrisonburg-Rockingham County area prepared by James Madison University students won honorable mentions in a national map design competition.

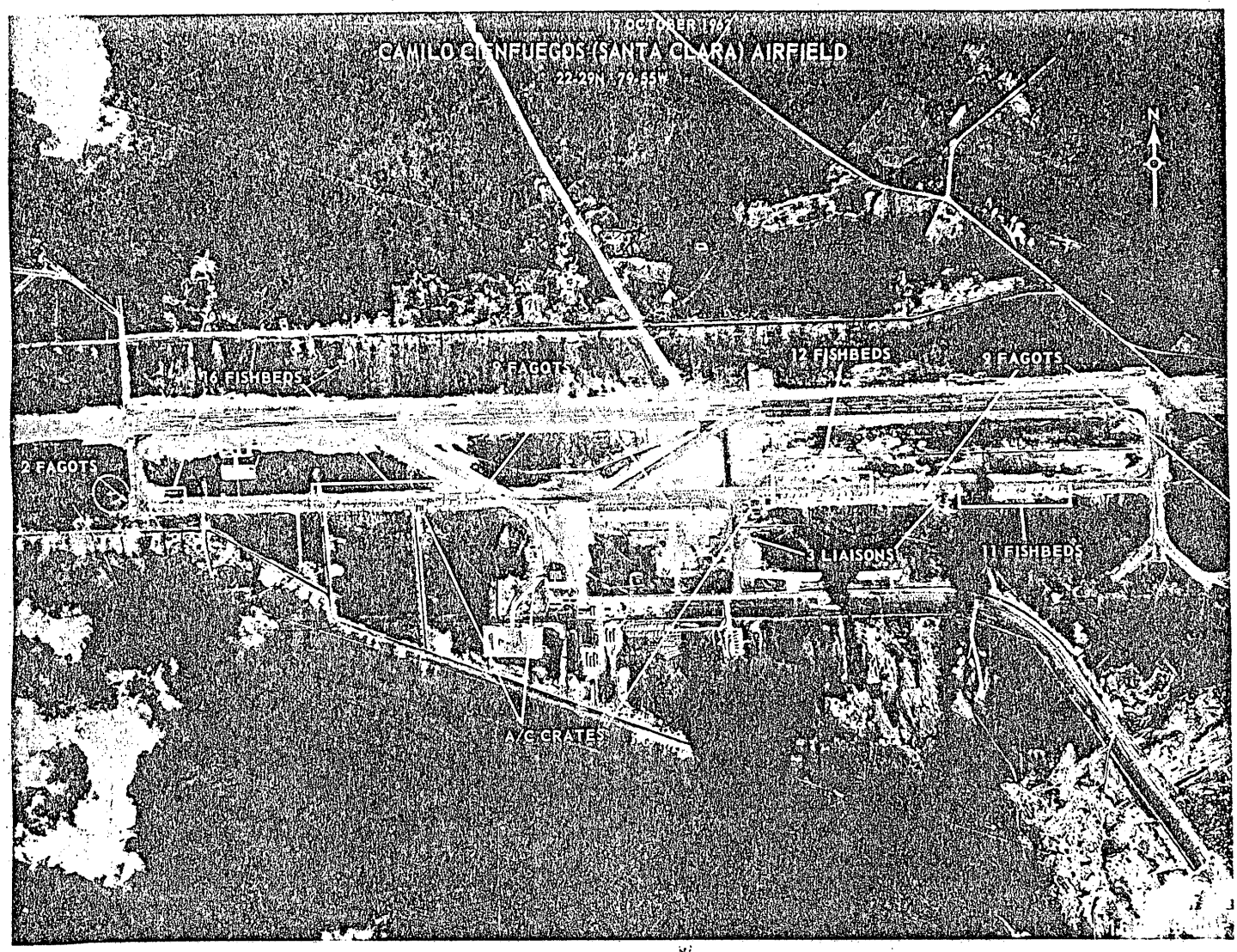
The students involved in preparing the maps last year were Chris Berdux, Paul Des Jardin, Greg Harris, Becky Hill, John Kuipers, Donnie Nau, Mark Owens and Jim Wilson.

The annual contest, sponsored by the American Congress on Surveying and Mapping in Washington, D.C., offers competition in commercial map and student map categories.

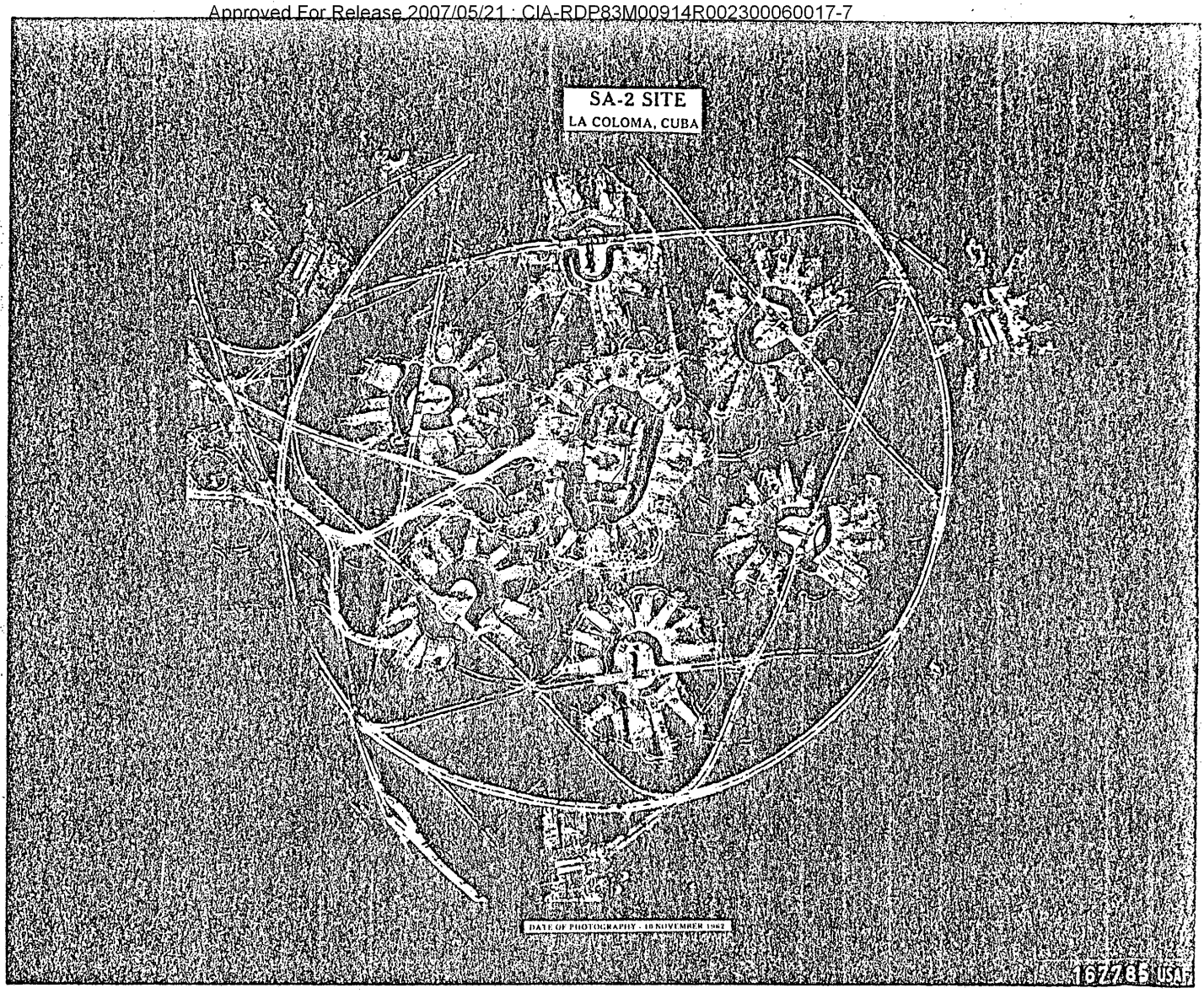
The JMU maps were designed and drafted by last year's cartography students in JMU's department of geology and geography, according to Dr. Glen Gustafson, associate professor of geography.

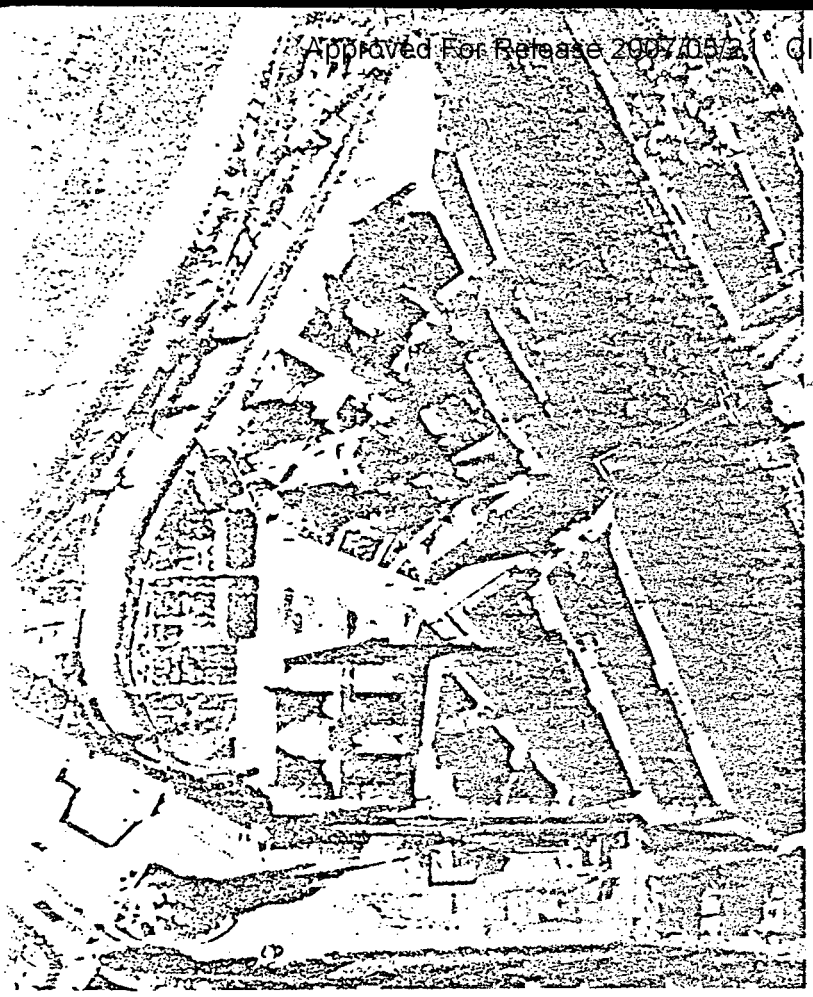
One map was the third edition of a general purpose map of Rockingham County, sponsored by Valley National Bank. The other was a multi-color zoning map of Harrisonburg, prepared for the Harrisonburg City Planning Department.

This is the first year that maps prepared by JMU students have been cited.



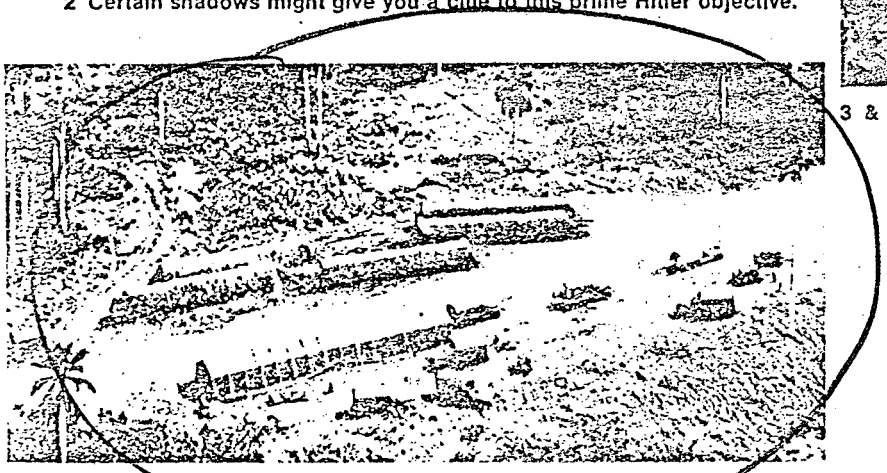
USAF 1677 89



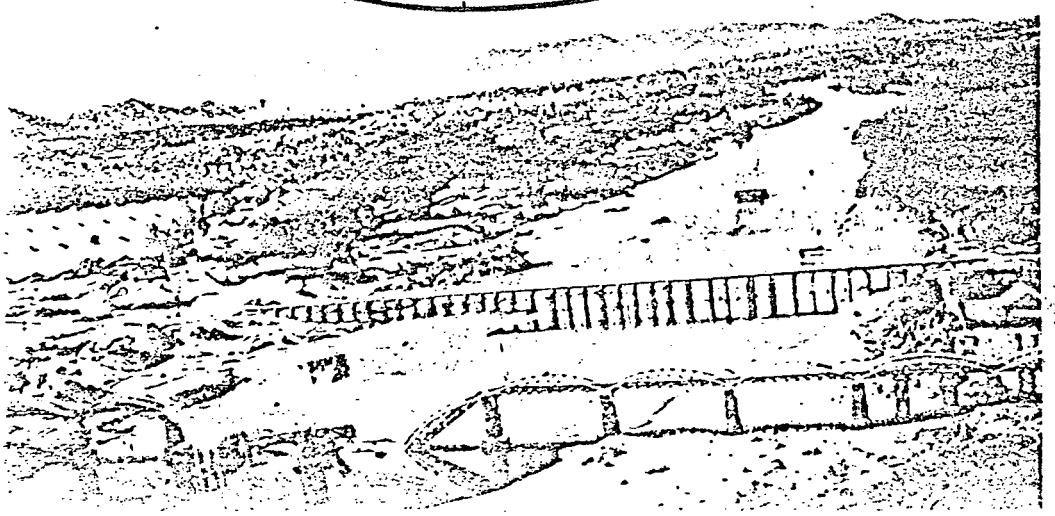


2 Certain shadows might give you a clue to this prime Hitler objective.

3 & 4 The objects in these photos presented President John F. Kennedy with a major crisis.



5 One of the bridges in this photo was built by "whistling" prisoners of war in World War II.



Readings

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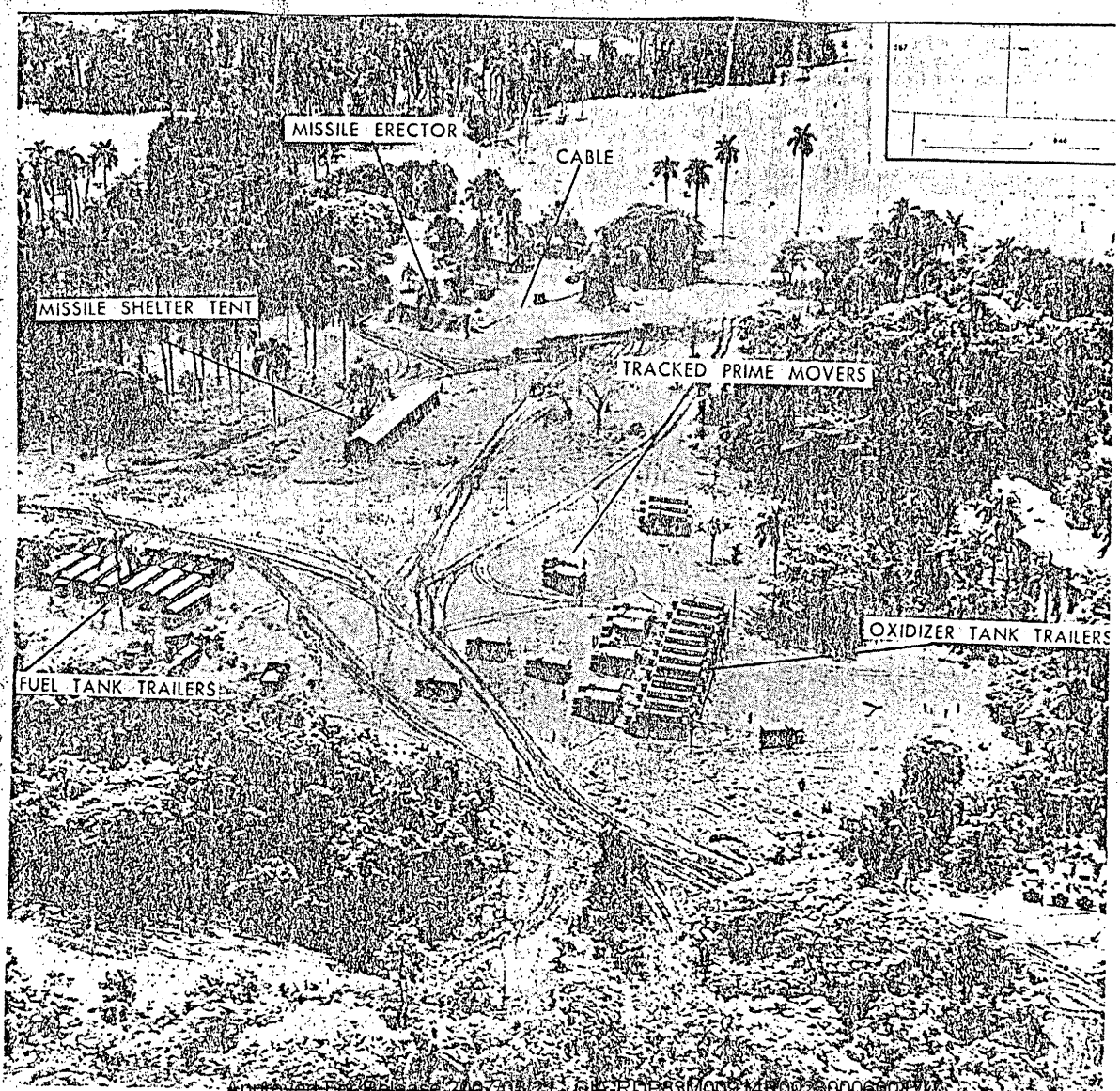

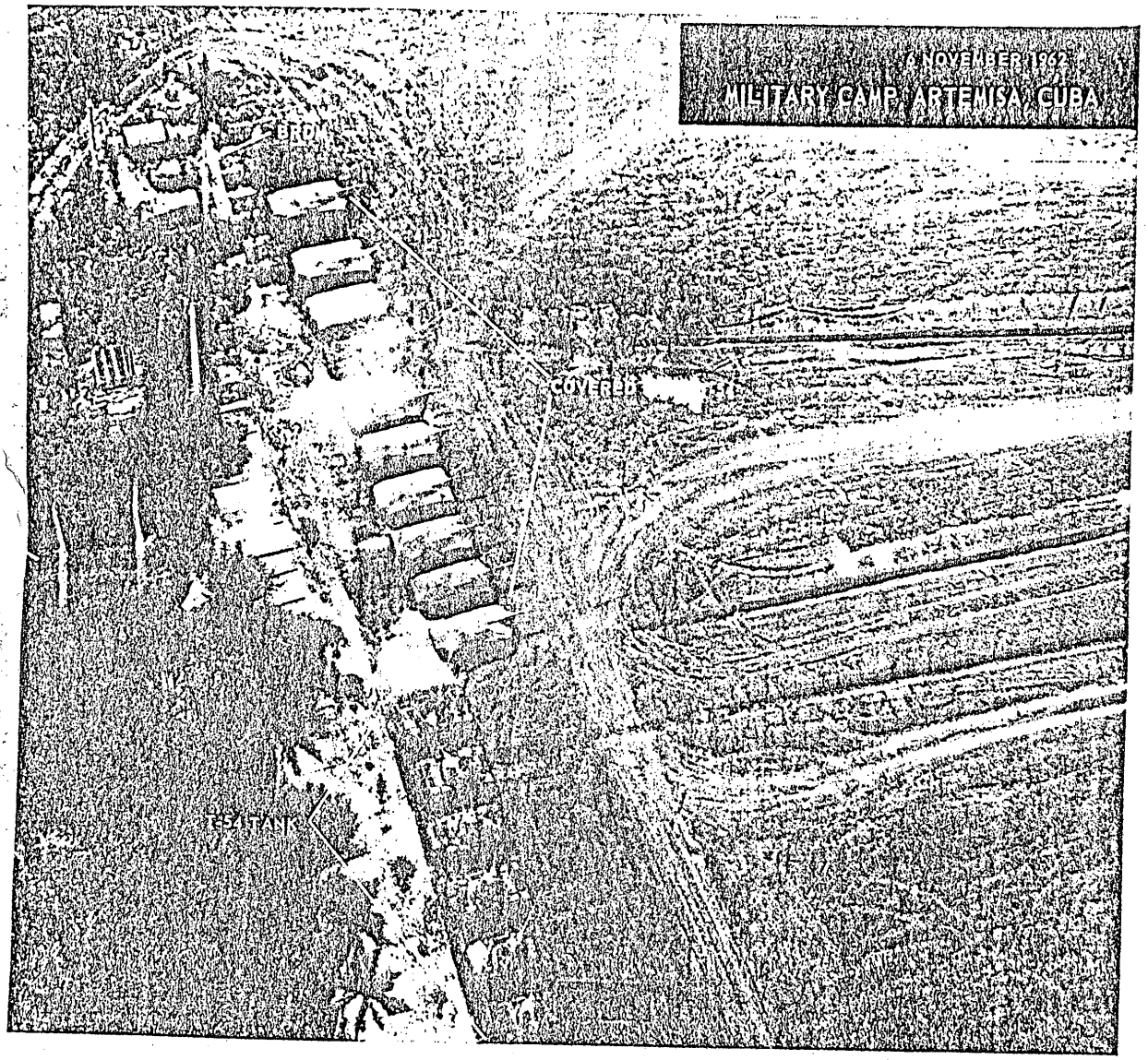

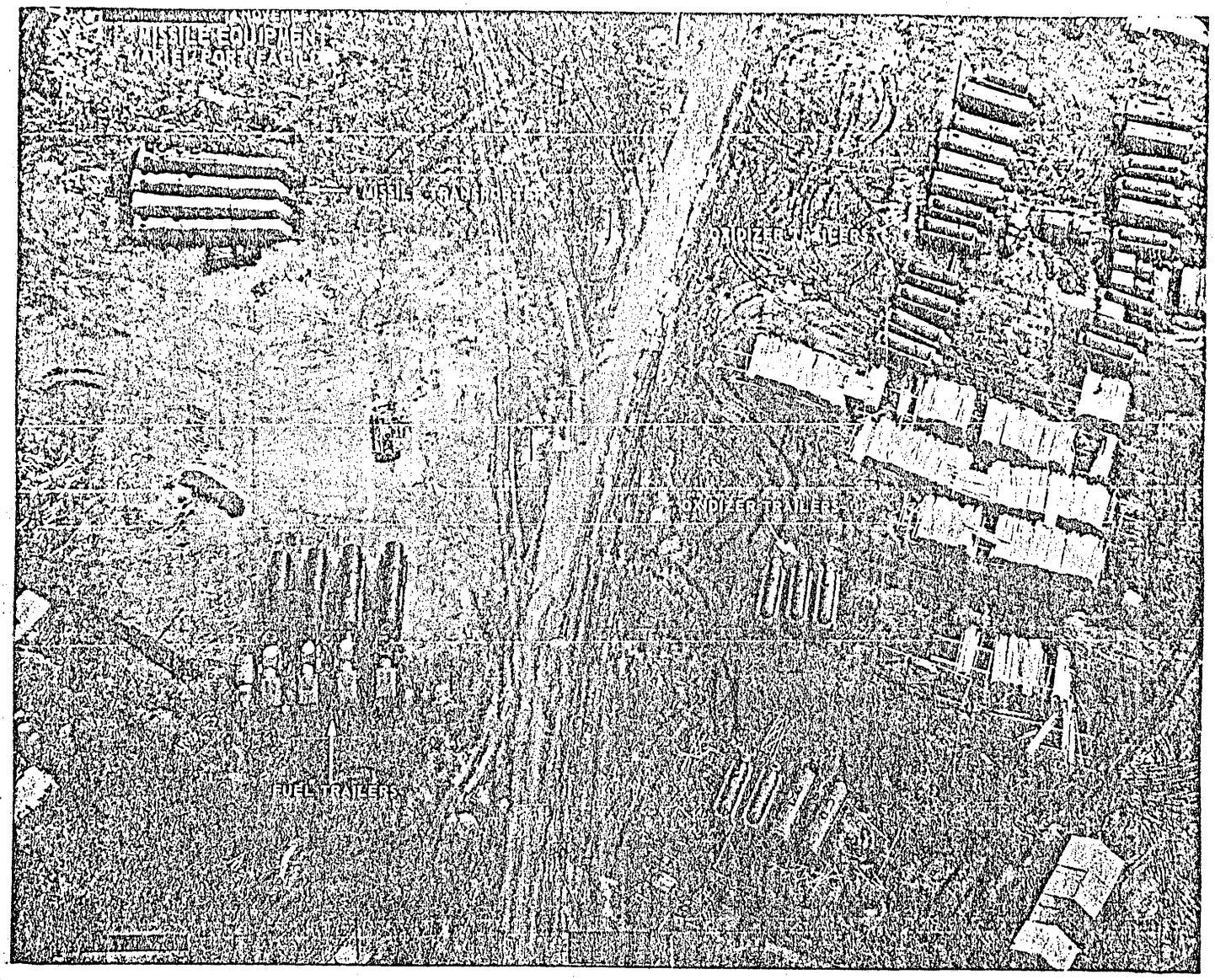

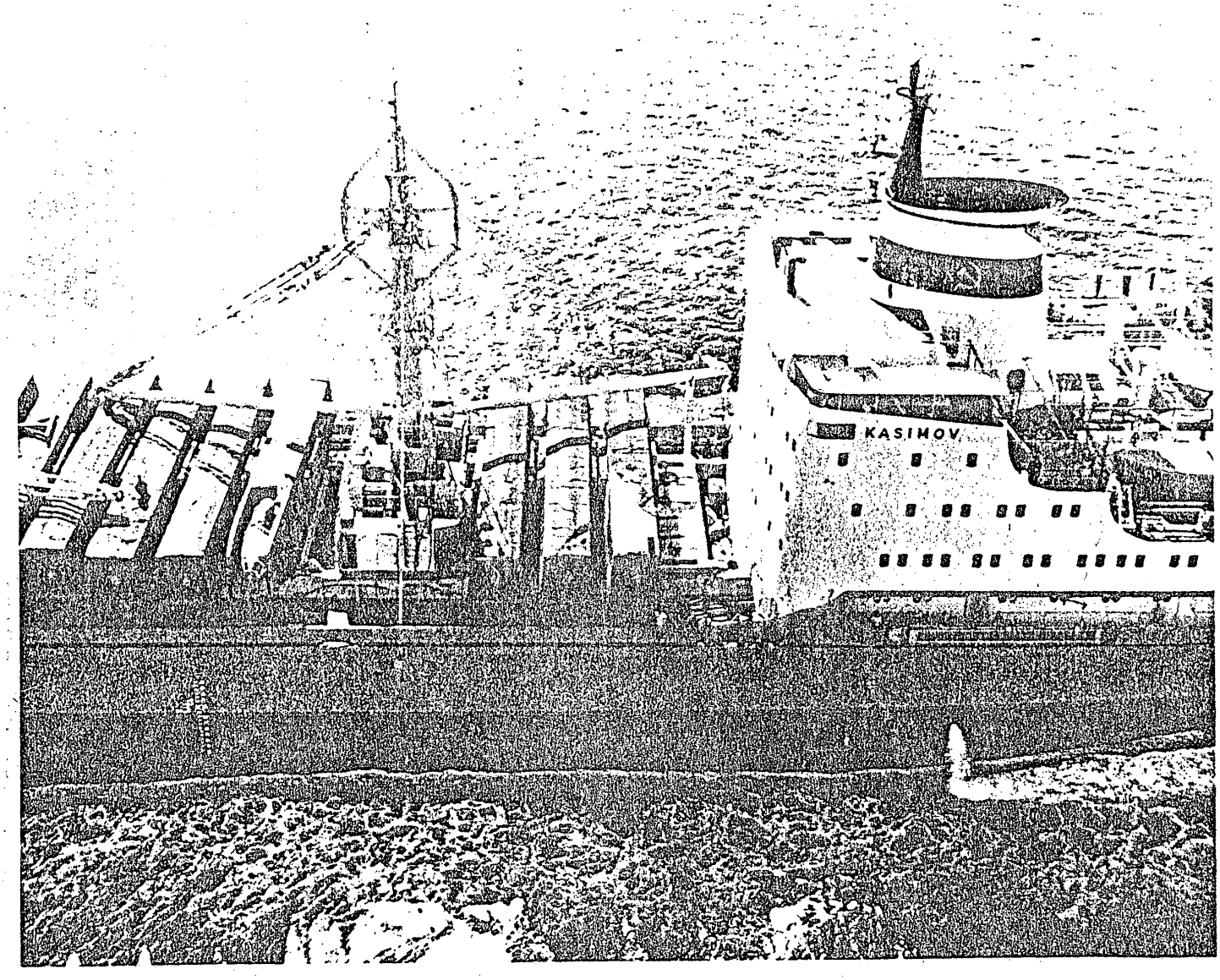

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